WHAT IS CLAIMED IS:

1. An encoder comprising:

a first array of n photodetectors, where n>2, each photodetector being characterized by a width d; and

a code strip imaging system for generating an image from a code strip on said first array, said image comprising alternating dark and light stripes, said stripes having a width of D, said dark stripes having a lower luminosity than said white stripes, wherein nd=(n-1)D, said code strip image moving in a first direction with respect to said first array, said distances d and D being measured in a direction parallel to said first direction.

2. The encoder of Claim 1 further comprising a plurality of detector circuits, each detector circuit converting a light intensity signal from a corresponding one of said photodetectors to a channel signal that switches between first and second logic states when said code strip moves relative to said array.

3. The encoder of Claim 2 further comprising a complementary array of n photodetectors, each photodetector in said complementary array being characterized by a width d, said complementary array of photodetectors being positioned relative to said first array of photodetectors such that each photodetector in said complementary array of photodetectors generates a light intensity signal that is a complement of said light intensity signal generated by a corresponding one of said photodetectors in said first array.

4. The encoder of Claim 1 wherein said first array of photodetectors is divided into a second array of photodetectors and a third array of photodetectors, each photodetector in said second array and said third array having a width d, wherein said third array of photodetectors is offset from said first array of photodetectors in said first direction.

5. The encoder of Claim 4 wherein said third array of photodetectors is offset from said second array of photodetectors in a direction orthogonal to said first direction.

6. The encoder of Claim 1 wherein said channel signals define a state for said encoder that repetitively cycles through 2n values when said code strip image moves a distance of 2D relative to said first array in said first direction.